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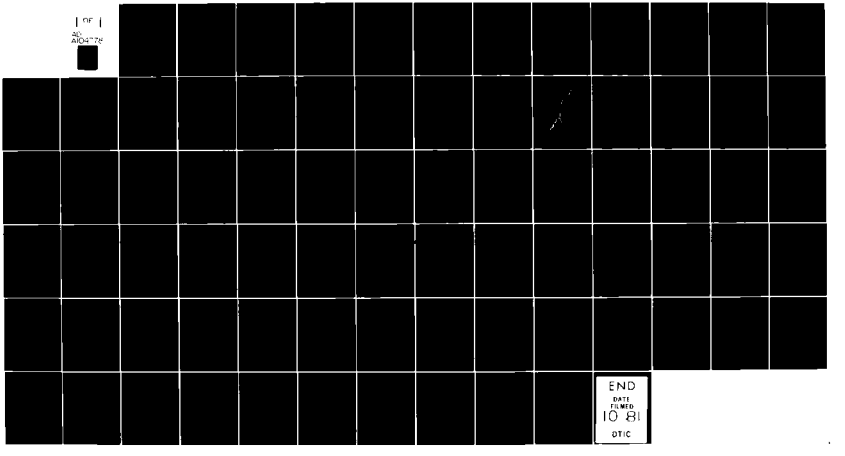

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ECONOMIC IMPACT OF RECREATION BUSINESSES IN COUNTIES ALONG THE McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM

UNDER CONTRACT No. DACW72-79-C-0004

A REPORT SUBMITTED TO:
U.S. ARMY ENGINEER INSTITUTE FOR WATER RESOURCES
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FORT BELVOIR, VIRGINIA 22060

IWR CONTRACT REPORT 80-C-5

DANIEL D. BADGER

AND

SIDNEY G. CABBINESS

AE 8043

JUNE 1980

DEPARTMENT OF AGRICULTURAL ECONOMICS
OKLAHOMA AGRICULTURAL EXPERIMENT STATION
OKLAHOMA STATE UNIVERSITY
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The economic impact of waterway recreational businesses in the 28 counties along the McClellan-Kerr Arkansas River Navigation System was determined. This impact was measured in terms of the number of jobs and the amount of personal income created by the businesses, and was estimated independently of recreation attendance data. Gross sales volume of the businesses in 1978 was $65.4 million; sales to waterway recreationists comprised 42%, or $27.3 million, of the total sales of the businesses. There were 1,920 full-time jobs in the recreation businesses. Personal income from the businesses,

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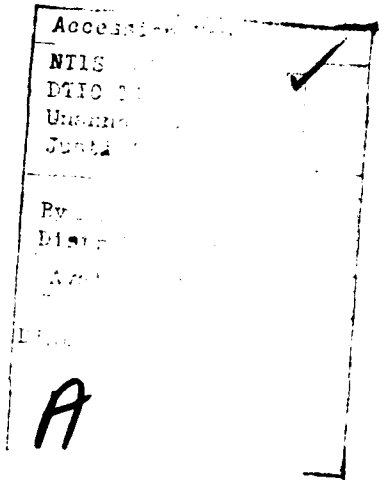
measured as payrolls and proprietors' income, was $15.4 million. When multiplier effects were included, the businesses generated 4,023 full-time jobs and $33.3 million in personal income for residents of the 28 waterway counties. Data on seasonality of sales and employment, trends in sales volume, age of businesses and their ownership, management problems, advertising, and impacts of gasoline shortage and higher gas prices are also presented.



This report is one of a series of impact-studies by the Institute for Water Resources dealing with the McClellan-Kerr Arkansas River Navigation System. All the reports listed below may be purchased from:

National Technical Information Service
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1.) "Recent Developments in the McClellan-Kerr Arkansas River Navigation System Area." IWR Research Report 77-R1

2.) "A Research Strategy for Social Impact Assesment: A Tale of Three Cities." IWR Contract Report 77-R2

3.) "An Application of the Interregional I/O Model for the Study of the Impact of the McClellan-Kerr Arkansas River Multiple Purpose Project." IWR Contract Report 77-2

4.) "Analysis of Expenditures for Outdoor Recreation at the McClellan-Kerr Arkansas River Navigation System." IWR Contract Report 77-4

5.) "Population Change, Migration and Displacement Along the McClellan-Kerr Arkansas River Navigation System." IWR Contract Report 77-5

6.) "McClellan-Kerr Arkansas River Navigation System: Hydroelectric Power Generation." IWR Research Report 77-R4

7.) "A River, A Region and A Research Problem." IWR Research Report 71-6

8.) "Regional Response Through Port Development: An Economic Case Study on the McClellan-Kerr Arkansas River Project." IWR Contract Report 74-5

9.) "Evaluation of Interregional Input-Output Models for Potential Use in the McClellan-Kerr Arkansas River Multiple Purpose Project Impact Study." IWR Research Report 74-6

10.) "Discriminant Analysis Applied to Commodity Shipments in the Arkansas River Area." IWR Research Report 74-R2

11.) "An Overview of the Impact Study of the McClellan-Kerr Multiple Purpose Arkansas River System." IWR Research Report 75-R3

12.) "Economic Impact of Recreation Businesses in Counties along the McClellan-Kerr Arkansas River Navigation System." IWR Contract Report 80-C-5

These reports are not to be construed as necessarily representing the views of the federal government or of the Army Corps of Engineers.

Preface

This study was accomplished under Oklahoma Agricultural Experiment Station Project S-1672, "Impacts of Alternative Recreation Management Strategies." This research was funded by the Institute for Water Resources (IWR), a research laboratory of the U.S. Army Corps of Engineers at Fort Belvoir, Virginia. It is part of the research study of "Impacts of the McClellan-Kerr Arkansas River Navigation System on Regional Development."

We appreciate the coordination efforts of Dr. L. George Antle of IWR in providing technical assistance on various aspects of the study. We also appreciate the efforts of Dr. Neil Dikeman, Associate Director of the Center for Economic and Management Research at the University of Oklahoma, and of the OU office of Research Administration, who expedited assignment of a portion of a contract to OSU. This type of arrangement demonstrates the ability of Oklahoma's two major research Universities to combine resources and to cooperate with each other in performing needed research on national, regional, and state problems.

We thank the following individuals who helped in this study:

John Sparlin, chief economist with the Tulsa District and David Burrough, chief of planning for the Little Rock District, U.S. Army Corps of Engineers, for their coordination efforts and for providing recreation attendance and other data for this study.

Joe Callaway, of the U.S. Army Corps of Engineers, located at Dardanelle Lake, and Joe Irvin of the U.S. Army Corps of Engineers, located at Lock and Dam 4 at Pine Bluff, for their assistance in making contacts with other Corps officials and in coordinating with local agencies and other key personnel in Arkansas.

Ron Webster of the Construction Research Engineering Laboratory (CERL) of the U.S. Army Corps of Engineers at Champaign, Illinois for providing county multipliers through CERL's Economic Impact Forecasting System (EIFS).

Ed Henderson and Jimmie Sallee, Area Rural Development Specialists with the Oklahoma State University Cooperative Extension Service, for arranging contacts and for setting up meetings with selected government agency officials. They helped us implement the research project rapidly and with good cooperation in the local areas.

Larry Gentry of the Kiamichi Economic Development District and Karen Neuwald and Larry Sand of the Eastern Oklahoma Development District, and other personnel in their offices, for providing background data and for sharing their insights with us.

Shirley Martin and Debbie Snyder Hatchett, undergraduate students in the Department of Agricultural Economics at OSU, for their fine efforts in developing the inventory of businesses to be interviewed, and for interviewing the recreation business operators in Oklahoma and Arkansas. They also assisted in coding interview responses, tabulating (by computer and by hand), and summarizing data. Shirley Martin prepared the data for use with SAS, and Debbie Hatchett prepared the material in Appendix B. Their ideas and contributions throughout the preparation of the report are greatly appreciated.

Gerald Doeksen and Mike Woods of the Department of Agricultural Economics at OSU, for helping compare county multipliers estimated by different sources and for many helpful ideas on the analytical part of the study.

Bill Warde, Bob Morrison, and Leroy Folks of the OSU Statistics Department, for their suggestions and assistance in establishing the sample size and sampling procedure for the number of businesses to be interviewed.

Kathy Heskett of the Department of Agricultural Economics at OSU for typing the final draft of this report.

Summary

Original plans to convert the Arkansas River into a navigable waterway were for purposes of commerce and flood control, and to improve the economic status of the region. As various projects opened along the McClellan-Kerr Arkansas River Navigation System in the 1960's and 1970's, recreation began to emerge as another major use of the waterway. Recreational use created a demand for recreation-related goods and services, and businesses which provided these began to increase in number along the waterway and its upstream lakes.

These businesses provide an economic stimulus to the region by selling their products to local residents and recreationists, and to recreationists from outside the local region (county). Additional income is generated in the local economy since part of the money spent by recreationists pays for the employment (another economic stimulus) of the local proprietors and employees of the businesses. Thus, the jobs and income provided by the recreation businesses provide economic benefits and increase the well-being of residents in the waterway area.

The purpose of this study was to measure the economic impact of waterway recreation businesses in the 28 counties in Oklahoma and Arkansas which are along the McClellan-Kerr Arkansas River Navigation waterway and which surround the three upstream lakes (Keystone, Oologah, and Eufaula) in the Navigation System. This impact was measured in terms of the number of jobs and the amount

of personal income created by the businesses, and was estimated independently of recreation attendance data. Multiplier effects (direct and indirect employment and income created) also were determined.

A total of 470 recreation businesses were inventoried in the study area. These businesses were characterized by the type of goods and services offered. The businesses varied from entirely recreation-oriented (marinas, boat storage, sale of recreation equipment) to small shops selling beer, snacks, ice, bait, and tackle, to convenience stores (offering gas, groceries, and sometimes bait) which, because of their location, serve both recreationists and nearby residents.

Data were collected by personal interviews with owner-operators or managers of 156 of these businesses. About 96% of the interviews were with owner-operators or managers, and 4% of the interviews were with employees or bookkeepers. Projections from the sample taken were based on the total waterway recreation business population in each county, in each state, and in the total study area.

Estimated 1978 gross sales of all the waterway recreation businesses were $65.4 million. However, sales to recreationists comprised only 42%, or $27.3 million, of the gross sales volume of the businesses (Table 5). Thus, the businesses as a whole remained dependent on non-recreational sales for more than half of their annual sales. During the peak recreation season, May 15 - September 15, the businesses received 39% of their total annual gross sales; 47% of their annual sales to recreationists were made during this four-month period (Table 7). Fifty-one percent of the sales made during

this summer season were to waterway recreationists (Table 6).

The businesses employed an estimated total of 1,333 full-time job equivalents, not including the jobs of owner-operators. The annual payrolls for these jobs (1978) totaled $9.6 million (Table 9). Proprietors' income, distributed among an estimated 587 recreation business proprietors, totaled $5.8 million in 1978 (Table 11).

Full-time job equivalents and the number of business proprietors were added together to determine the total number of jobs created by the recreation businesses. Because proprietors were usually owner-operators, not financial owners only, a proprietorship was considered a full-time job equivalent. The recreation businesses thus provided a total of 1,920 full-time jobs to waterway county residents (Table 12).

When multiplier effects were added, the businesses generated 4,023 full-time jobs for waterway counties (Table 12). These jobs include those in the recreation businesses, plus those created in all other industries as a result of sales by these businesses to recreationists.

Payrolls and proprietors' income were added to determine personal income created by the recreation businesses. Personal income from the businesses was estimated at $15.4 million. After multiplier effects, a total of $33.3 million in personal income was generated from recreation business in the study area (Table 13).

Based on an earlier (1974-75) IWR study, an estimated $35.3 to $46.6 million was spent in the local area of the Navigation System by recreationists. The current study indicates that only $27.3 million of the total sales by recreation businesses were

made to recreationists. Some of this difference is due to probable under-reporting of sales in the current study. Also, the 1974-75 estimates were determined by using the reported recreation attendance data for each waterway project. It is possible that some of those attendance figures were overestimated.

The economic impact of water-based and related land-based recreation activities along the Arkansas River Navigation System can be measured locally, as in this study, regionally, or nationally. The perspective of the policymaker and the decisions to be made are major determinants in selecting the level of analysis.

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Introduction

The McClellan-Kerr Arkansas River Navigation System provides a natural study area for analyzing the economic impact, regionally and nationally, of selected multiple purposes of the system. Although the navigation part of the project up to the Port of Catoosa was completed in 1970, many of the basic recreational facilities were not completed until the late 1970's. As funds become available, additional recreational improvements are continuing to be made at some of the lakes and locks and dams associated with the project.

Due to lack of funds by the state and county governments in Oklahoma and Arkansas, needed road improvements to some of the Corps of Engineers' recreational facilities still have not been made. Dirt and gravel roads and break-up of existing paved roads are impediments to attracting recreationists to these recreation areas.

Numerous recreational businesses, providing food and drink, and recreation equipment and related services, have located along access roads around the lakes and locks and dams. Some of these businesses are located in state parks and recreation areas; a few are marinas located on the lake. Some food and gas businesses were operating near specific project sites before lake or lock and dam completion. These businesses originally catered to permanent residents living in the area; some may have added additional services and products after recreational facilities were developed nearby. However, many of the

businesses have located in the waterway area during the 1970's.

Need For Study

No detailed analysis has been made of the impacts of expenditures by recreationists at local businesses in the areas along the Arkansas River Waterway. A study has been made of total recreational expenditure impacts, through interviews with recreationists and seasonal and permanent home owners at the McClellan-Kerr Arkansas River Navigation System (1). However, that study defined the impact area to be 65 counties in three functional economic areas centered in Little Rock, Arkansas; Fort Smith, Arkansas; and Tulsa, Oklahoma (OBERS areas 117, 118, and 119). Expenditures were attributed to the region in which the expenditures were made, in some cases, several hundred miles from the navigation system. The study (1) was done to facilitate estimating the indirect and induced impacts by an inter-regional input-output model (2). Two earlier studies surveyed recreation businesses at Lakes Tenkiller and Texoma (3,4). These studies relied on recreation attendance data to inflate the sample survey results to the population estimate.

This study was requested by the Institute for Water Resources, a research laboratory of the U.S. Army Corps of Engineers, as a part of its research work unit on "Impacts of Water Resources on Regional Development (an Assessment of the McClellan-Kerr Arkansas River Waterway)". The two main objectives of the research work unit are to estimate the economic impacts of water-related industry on Arkansas and Oklahoma, and to estimate the economic impacts of water-related

industry on the waterway counties (the 28 counties directly adjacent to the navigation channel and its upstream lakes). These estimates assist in determining some of the social welfare aspects (improvements in income and standard of living of the local residents) of the McClellan-Kerr Arkansas River Navigation System.

Objectives of Study

The overall objective of this study was to estimate the economic impacts of recreation along the McClellan-Kerr Arkansas River Waterway, using information obtained from business firms in the 28 waterway counties. There were four specific objectives or tasks of this study.

1. Develop an inventory of recreation business firms in the waterway counties representing the significant retail/wholesale sectors selling goods and services to recreationists using the McClellan-Kerr Arkansas River Navigation System. (The Navigation System includes three upstream lakes plus the navigation channel). A related task was to develop a random stratified sample and a survey instrument.
2. Obtain relevant data from sales tax records for the sectors providing significant sales to recreation users of the Navigation System.
3. Administer survey, code responses, and analyze direct economic impacts. Use multipliers developed by the Construction Engineering Research Laboratory's (CERL) Economic Impact Forecasting Model to estimate indirect income and employment impacts by county, state, and for the total 28-county area.
4. Prepare a report summarizing the sample selection, survey instrument, and evaluation of impacts.

The Study Area

For this study, the local impact area includes 15 counties in Arkansas and six counties in Oklahoma along the Navigation System. It also includes seven Oklahoma counties surrounding three upstream lakes which are integral parts of the flood control and low flow augmentation features of the Navigation System. These lakes are Keystone, Oologah and Eufaula. The 28 counties in the study area are shown in Figure 1.

Procedure

Primary data used in this study were obtained by personal interviews with owner-operators, managers, and employees of the recreation businesses in the study area. Interviews were conducted during the summer of 1979, the season when recreation attendance is at a maximum, to ensure contact with businesses that might be closed during other seasons of the year. A sample of 200 businesses was selected to be interviewed.

Stratification of Sample

The sample was stratified by location using 1978 recreation attendance data for the lakes and lock and dam projects along the waterway. The proportion of 1978 annual waterway attendance received by each project along the waterway was calculated; this determined the fraction of the 200 business interviews that would be obtained from each lake or lock and dam area (Table 1).

Oklahoma Counties

1. Osage
2. Nowata
3. Rogers
4. Tulsa
5. Pawnee
6. Creek
7. Wagoner
8. Muskogee
9. McIntosh
10. Pittsburg
11. Haskell
12. Sequoyah
13. LeFlore

Arkansas Counties

14. Crawford
15. Sebastian
16. Franklin
17. Johnson
18. Logan
19. Pope
20. Yell
21. Conway
22. Perry
23. Faulkner
24. Pulaski
25. Jefferson
26. Arkansas
27. Lincoln
28. Desha

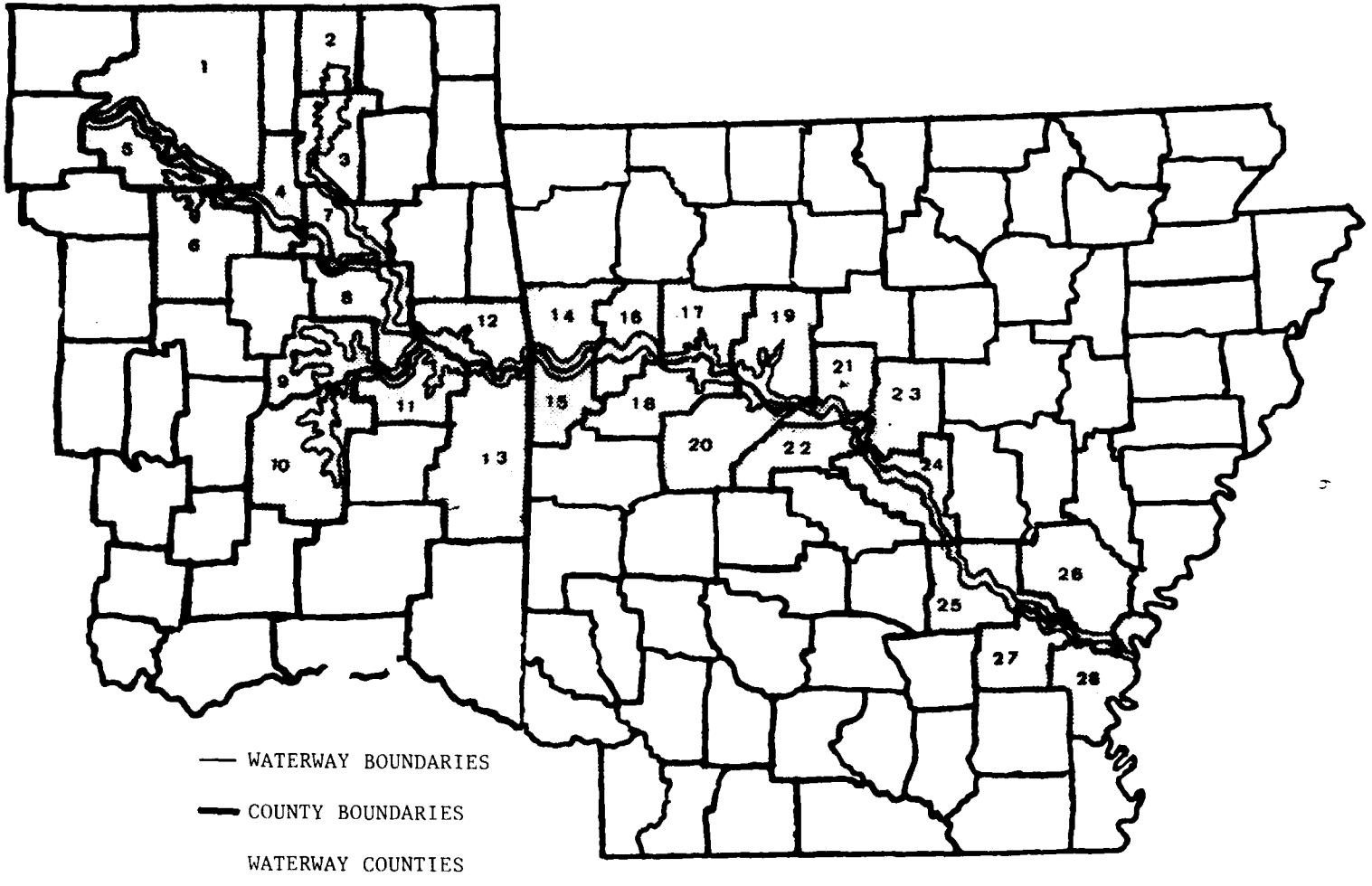

FIGURE I: THE McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM AND 28 COUNTIES OF THE STUDY AREA

TABLE 1: USE OF 1978 RECREATION ATTENDANCE DATA TO STRATIFY RECREATION BUSINESS INTERVIEWS AT WATERWAY PROJECTS

Waterway Project	1978 Recreation Attendance[a] (1,000's)	Percent of Total Waterway Recreation Attendance	Number of Interviews to Obtain[b]
OKLAHOMA			
Oologah Lake	1,801	6.6	13
Keystone Lake	4,179	15.2	30
Eufaula Lake	7,242	26.4	53
Newt Graham Lock & Dam	646	2.3	5
Chouteau Lock & Dam	534	1.9	4
Webbers Falls Lock & Dam	1,243	4.5	9
Robert S. Kerr Lake	1,834	6.7	14
W. D. Mayo Lock & Dam	296	1.1	2
State Total	17,775	64.7	130
ARKANSAS			
Lock & Dam No. 13	757	2.8	6
Ozark Lake	1,022	3.7	7
Dardanelle Lake	3,441	12.5	25
Lock & Dam No. 9	403	1.5	3
Toad Suck Ferry Lock & Dam	680	2.5	5
Murray Lock & Dam	1,005	3.7	7
David D. Terry Lock & Dam	1,195	4.3	9
Lock & Dam No. 5	314	1.1	2
Lock & Dam No. 4	182	0.7	1
Lock & Dam No. 3	206	0.7	1
Lock & Dam No. 2	446	1.6	3
Norrell Lock & Dam No. 1	49	0.2	1
State Total	9,700	35.3	70
TOTAL	27,475	100.0	200

[a]Attendance data obtained from Tulsa District and Little Rock District, U.S. Army Corps of Engineers

[b]Calculated as percent of Total Waterway Attendance x 200

A pre-survey of the study area indicated very few recreation businesses around some of the more remote lock and dam projects. Recreation areas border the entire waterway, and in some cases are not associated with a specific lock and dam. In cases where only a few interviews were needed for a project area, two or more lock and dam areas were combined into a single, larger interview area. These interview areas were more convenient to work with, and represent a more realistic way to divide the total study region. Businesses are not always associated with a specific lock and dam or recreation area. They are often located on a highway which provides access to several recreation areas. Customers might go to any or all of the recreation areas after they purchase their supplies from the business. The number of interviews grouped by interview areas are shown below.

Interview Area	No. of Interviews to Obtain
Oologah Lake	13
Keystone Lake	30
Eufaula Lake	53
Newt Graham and Chouteau Locks & Dams	9
Webbers Falls Lock & Dam	9
Robert S. Kerr Lake	14
W. D. Mayo Lock & Dam	2
Lock & Dam No. 13	6
Ozark Lake	7
Dardanelle Lake	25
Lock & Dam No. 9	3
Toad Suck Ferry Lock & Dam	5
Murray Lock & Dam	7
David D. Terry Lock & Dam	9
Locks and Dams Nos. 1-5	8
	200

Sampling Procedures

Statisticians at Oklahoma State University were consulted to develop a random sampling procedure for each interview area along the waterway. Convenient travel and access routes to recreation areas, relative popularities of recreation areas, and proximity of businesses to one another could produce locational biases in sample results. Thus, a procedure such as interviewing every third business in each area was considered inappropriate. Limited numbers of recreation businesses in some areas also prohibited the use of this method. Instead, the businesses to be interviewed were preselected at random from the total recreation business population of each interview area.

An inventory of the waterway recreation-related businesses in each area was needed for the sampling procedure as well as for projecting total business impact based on the sample taken. This inventory was prepared prior to interviewing in each of the areas. A "windshield survey" technique was used to compile a list of names and locations of area recreation businesses. Project maps published by the Corps of Engineers show major federal, state, and local roads, access roads to recreation areas, and local communitities near each lake or lock and dam area. These maps were used during the windshield surveys to locate all recreation businesses. In larger towns (e.g. Muskogee, McAlester, Russellville, Pine Bluff) where recreation businesses could not be easily located by simply driving along main streets, local telephone directories were used to locate the businesses. Headings in the yellow pages such as "sporting goods", "boat sales", "bait", "marinas", etc., were consulted. The inventories were considered complete lists of local area waterway recreation businesses.

Recreation-related businesses in the two large cities of the area, Tulsa and Little Rock, were not inventoried. David D. Terry and Murray locks and dams are located on the east and west edges of Little Rock, respectively. Other nearby recreation areas that Little Rock residents might visit (e.g., Lakes Maumelle or Conway) are not associated with the waterway. Thus, recreation businesses within Little Rock are not necessarily directly associated with the waterway. A similar situation exists in Tulsa. Tulsa residents may visit Keystone and Oologah Lakes, but they also frequent other lakes outside the area (e.g., Grand, Tenkiller, and Fort Gibson Lakes). Recreation business operators in these cities do not know what portion of their sales is associated with waterway recreational use. Alternatively, all recreation equipment and supplies sold might be used at waterway projects, but such goods are used at other recreation areas as well. Thus, recreation business sales in these cities are "diluted" by recreational use of lakes outside the study area. Such dilution effects are possible in towns everywhere in the study area, but these effects increase with population size. Use of data from Tulsa and Little Rock recreation businesses would overestimate the results of the study.

Dilution effects also increase with distance from a given recreation site. The waterway forms the boundaries of several counties in the study area; only small portions of these counties are close enough to the waterway to directly receive its recreational impact. The inventory procedure took this into consideration by only including recreation-related businesses within ten miles of the waterway (or its upstream lakes).

For each interview area, each business listed in the inventory was assigned a number which was written on a slip of paper and pooled. The

predetermined number of slips were drawn from the pool, without replacement. Alternates were also drawn in case of unsuccessful or incomplete interviews.

The owners or operators of the businesses corresponding to the numbers drawn were personally interviewed. If a respondent did not provide adequate information to complete an interview, the interview was scratched (not used as data and not counted as an interview) and the first alternate business was substituted. The first-round draw of businesses could be interviewed in any convenient order, but alternates were interviewed in the order they were drawn. That is, alternate number six was not interviewed until alternates numbered one through five had all been interviewed or approached. This prevented locational biases on the part of the interviewers during sampling.

Survey Instrument

The survey instrument was modified from previously developed questionnaires used in economic impact studies of Lakes Tenkiller and Texoma (3,4). Information to be obtained was grouped under the following headings:

I. General Information
II. Employment Data
III. Seasonal Nature of Business
IV. Owner's Investment Data
V. Business Sales and Operational Data
VI. General Comments

A copy of the survey form is in Appendix A.

For an interview to qualify as complete (usable data), certain essential questions had to be answered. Essential questions were those relating to employment and sales, or specifically, questions 1.03,

2.01-2.04, 3.01-3.05, 5.05-5.07 of the survey form.

Interviewing Procedures

Two full-time interviewers were hired to collect the primary data. They were thoroughly briefed and trained to identify the appropriate businesses for the inventory, to conduct interview questioning in a respectful manner, and to record interview responses correctly on the questionnaires.

Interviews were conducted only on weekdays, during regular business hours, so as not to interfere with the busier weekend or evening periods of recreation business operators. The weekend period usually began on Friday afternoons, so this also was a poor time to conduct interviews. Friday afternoons were generally used for travel and/or coordination with project supervisors in Stillwater.

Interviewers did not attempt to conduct an interview if an establishment was busy with several customers. Instead, they delayed attempting to survey such businesses until some later time, when few or no customers were present. This minimized interference with respondents' work duties, a better interviewing atmosphere was present, and usually the interviewers' time was saved, as well.

During the interviewing, several steps were taken to assure respondents of the legitimacy of the interviewers. When possible, the interviewers' vehicle was parked where its university seal and/or government license plate would be visible to the person being interviewed. If this was not possible, interviewers drove past the main window of the business before parking, hoping the state-owned car would be seen. Interviewers

wore identification tags during the interviews. They introduced themselves, stated their department and university affiliation, gave introductory remarks concerning the nature and purpose of the interview, and assured respondents of the confidentiality of their individual responses.

Some of those approached refused to be interviewed after the above introduction, before any survey questions were asked. In those cases, interviewers politely thanked the person for his or her time and left immediately to prevent any antagonism.

Some questions in the survey, particularly those associated with employment and sales, had sensitive connotations to some respondents. When such questions were asked, some respondents refused to answer one or a few of the questions; others refused to complete the remainder of the interview. (These respondents' main suspicion seemed to be that their answers would end up in the hands of tax officials.) If the questions declined were non-essential information, the interview continued if no hostility was apparent. If the declined question related to essential data or if the respondent refused to answer any further questions, the interview was terminated and interviewers left, thanking the respondent for his or her time.

A more detailed discussion of specific procedures is presented in Appendix B.

Analysis of Data

Since the location of each business in the inventory was known, primary data could be aggregated by county. This was done by computer,

using the Statistical Analysis System (SAS) program (developed by North Carolina State University). The sample obtained from each county was considered uniform with respect to the entire waterway recreation business population in the county. Direct employment and income impacts of the businesses were calculated according to the proportion of those interviewed to the total waterway recreation business population in each county. These calculations are explained in more detail in the appropriate results sections.

Total economic impacts, i.e., the sum of direct impacts and multiplier (indirect) effects, were estimated using multipliers developed by the Construction Engineering Research Laboratory's (CERL's) Economic Impact Forecast System (EIFS). These multipliers were applied to county employment and income data from the waterway recreation businesses to estimate total economic impact of the businesses. The multipliers are those derived from export base economic theory.

Results

Study objectives specified the use of sales estimates to determine the economic impact of McClellan-Kerr waterway recreation businesses. Estimates of gross sales were obtained, but these data are inadequate to determine economic impacts. The amount of profit (i.e. net income) obtained by the businesses is needed to determine impact, since this money, not total sales volume, is what remains available for spending within the study region. Inadequate information was obtained from the survey section on owner's investment data (questions 4.01-4.05)

to estimate profits of businesses. Instead, payroll data and proprietors' incomes were used as a measure of business incomes.

Task one (as described in "Objectives of Study"), development of the sample population, sampling method, and survey instrument (questionnaire), was accomplished as described in "Procedures".

Data availability from sales tax records was assessed (task 2). In Oklahoma, sales tax data were available by county and by Standard Industrial Classification (SIC) code. Several appropriate business sectors could be identified (sporting goods dealers, hotels, grocery stores, and others), but there was no way to determine what fraction of a county's businesses in a given sector was related to waterway recreation. In Arkansas, sales tax data were available by county; data by SIC codes were only available at a substantial additional cost. Even if funds for this purpose had been available, the problem of separating waterway and nonwaterway businesses in each county would still remain.

Number of Interviews Obtained

Data and results presented were obtained from 24 of the 28 waterway counties comprising the study area. No appropriate recreation businesses were located in Lincoln county, Arkansas; thus no interviews were obtained from that county. No data were obtained from Perry, Arkansas, or Pulaski counties in Arkansas. Only four appropriate businesses were inventoried in Perry and Arkansas counties (two in each county). Attempts to obtain data from those businesses were unsuccessful. The reason no interviews were taken in Pulaski county,

where Little Rock is located, has already been explained. While businesses within the city itself were excluded from sampling, businesses in the immediate vicinity of each of the two lock and dam areas, at city outskirts, were admissible. However, only one such business was located in Pulaski county. An attempt to interview that business was unsuccessful.

The results of this study are based on data from 156 businesses. The overall interview response rate, i.e., the usable interviews obtained from the total number of businesses contacted, was 43%. There were several factors which affected the total sample size obtained and the response rate. The inadequate number of businesses available for interview in some areas has been discussed. The number of businesses in these areas did not always correspond with the reported attendance data, on which sampling was based. The sensitive nature of some of the essential questions on the survey also hindered data collection.

Another significant factor was the length of time businesses had been operated by the current owner. A business had to be operated at least one year under the current owner-operator for the questions in the survey to be answered. Although many business establishments were several years old, the current owner had been operating less than a year and could not answer the essential survey questions pertaining to seasonality of sales and employment, proportion of sales to recreationists, and 1978 gross sales volume.

There were some cases in which an employee could not provide (did not know) the necessary information. The manager or owner of the business was not available or could not be contacted despite one or

two repeated visits to that business by the interviewers.

The inventory included 470 businesses. Thus, the data obtained from the 156 interviews represent 33% of the entire waterway recreation business population.

In the results that follow, both raw data (as obtained from the interview sample) and data expanded to represent the total county inventory are presented. The expanded data were calculated by multiplying raw data by the ratio of the total number of recreation businesses to those interviewed in each county. For example, if 10 of a total of 20 businesses were interviewed in a county, then

$$\text{sample recreation employment} \times \frac{\text{20 businesses total}}{\text{10 businesses sampled}} = \text{total county recreation employment.}$$

Individual county results are summed to determine totals by state and for the entire study area.

Types of Businesses Interviewed

Businesses surveyed often had more than one type of product or service to offer. Respondents were asked to rank the three most important parts of their businesses (survey question 1.03). Results for all the businesses surveyed are presented in Table 2.

The most typical recreation business was an establishment which sold some combination of food, gasoline, and bait. The food portion could range from beer or snacks, ice, and tobacco to a more complete line of groceries. Interviewees ranked the different parts of their businesses in terms of the income generated by each part.

TABLE 2: TYPES OF BUSINESSES INTERVIEWED IN 1979 AND THEIR RELATIVE IMPORTANCE, McCLELLAN-KERR WATERWAY

(Percent of Businesses Interviewed)

Type of Business	Most Important	Ranked Second[a]	Ranked Third[a]
Lodging	5	-	-
Restaurant-Convenience	1	-	-
Restaurant-Sit Down	5	2	1
Tavern	-	-	1
Service Station	6	3	-
Food Store	17	13	3
Marina (full service)	6	1	-
Boat Rental	-	-	-
Boat Storage	2	2	1
Boat Sales	6	4	-
Boat Repair	3	6	3
Retail Water Sports Equipment	3	2	4
Retail Fishing Equipment	3	3	3
Fishing Bait-tackle	8	8	12
Package Liquor	1	-	-
Package 3.2 Beer	3	12	8
Open Fishing Dock	-	-	-
Closed Fishing Dock	-	-	1
Boat Docks	-	1	-
Snacks, Ice, Tobacco, etc.	1	8	12
Gasoline Sales Only (no service)	20	12	2
Recreation Vehicle Storage	-	1	-
Recreation Vehicle Sales	1	-	-
Recreation Vehicle Repairs	-	1	-
Camping Equipment	1	-	1
Sporting Goods	1	1	-
Miscellaneous	5	1	2

[a]Values listed will not total 100(%) because some establishments surveyed had only one type of business or product.

For this reason, the gasoline sales category was the most important for the largest percentage of businesses interviewed. The food store type (indicating more complete grocery selections) also ranked high in primary or secondary importance. The beer, snacks, etc. and fishing bait categories were more often of secondary or tertiary importance rather than most important.

The business types listed in Table 2 include all types approached for interview. Some business types show little or no ranking because interviews were unsuccessful or because the category was not among the top three business types for any of the successful interviews. The miscellaneous category included some concessions at state parks.

Responses to other survey questions provide further descriptions of the businesses interviewed. Information concerning major management problems, means of advertisement, and impacts of gasoline shortage and higher gas prices was obtained from survey questions 5.01, 5.02, and 5.03, respectively. Results from these questions are presented in Appendixes C, D, and E. General comments (survey question 6.02) made by respondents are presented in Appendix F.

Age of Businesses and their Ownership

As one recreation business operator indicated, sales volume in many cases depends on the management ability of the operator and the stability of the business. The types of businesses interviewed appeared to have a high turnover of ownership. Less than half (47%) of the businesses surveyed were currently under original ownership. Fifty-seven percent of the businesses interviewed had been under the same ownership for five years or less (Table 3). Only 22% of the

TABLE 3: LENGTH OF TIME UNDER SAME OWNERSHIP, McCLELLAN-KERR WATERWAY RECREATION BUSINESSES

Number of Years	Number of Firms	Percent
1	33	21
2	26	17
3	13	8
4	14	9
5	3	2
6-10	29	19
11-15	24	15
16-20	3	2
21-30	5	3
31-50	6	4
TOTAL	156	100

TABLE 4: AGE OF McCLELLAN-KERR WATERWAY RECREATION BUSINESSES

Number of Years	Number of Firms	Percent
1-5	35	22
6-10	27	17
11-15	41	26
16-20	15	10
21-30	5	3
31-50	18	12
Age Not Known[a]	15	10
TOTAL	156	100

[a]Only 141 of the 156 respondents were able to answer this question; the number of years was often given as an approximation.

business establishments were from one to five years of age (Table 4). Results shown here do not include those businesses orginally selected in the sample which could not be surveyed because their current ownership was less than a year old.

It is also shown by data in Tables 3 and 4 that some businesses were established long before the waterway projects were completed. Often, these businesses orginally sold gas, groceries, etc., for non-recreational uses, but their location was such that they also served recreationists after the lake and lock and dam was completed. Some of the older businesses were located near the river and always had been recreation oriented; the creation of the Navigation System did not change their clientele.

Sales Volume and its Seasonal Distribution

Respondents were asked to state their 1978 gross sales volume in terms of one of 13 categories listed in the questionnaire (survey question 5.07). County sales volumes were estimated using the midpoints of each category, except in the case of the last category, "Over $350,000", where the value $350,000 was used.

The 1978 sales volume of each business, as estimated by the midpoint of the category selected, was distributed over four seasons of the year according to information provided by the respondent (question 3.01). Interviewees were also asked what portion of their sales during each of these seasons was made to waterway recreationists (question 3.02). Thus, sales to recreationists by season could be calculated. Total annual sales to waterway

recreationists were the sum of the four seasonal figures.

The data for 1978 gross sales and sales to recreationists, for the sample and for the total number of recreation businesses in each county, are presented in Table 5. The estimated 1978 gross sales volume of all the businesses in the 28-county study area was $65.4 million. About 42% of these sales, or $27.3 million, were made to waterway recreationists. Three-fourths of this sales volume was from the sale of goods and one fourth was from the sale of services (Appendix G).

Oklahoma businesses were responsible for almost $44 million of the gross sales volume, or 67% of the gross sales of the waterway recreation businesses. Oklahoma businesses' sales to recreationists were $19.6 million; this was almost 72% of the total waterway recreation sales for both states. Over $8 million, 41%, of Oklahoma's recreation sales came from the Lake Eufaula area, in McIntosh and Pittsburg counties. In Arkansas, almost $2.7 million or 35% of the waterway recreation sales in the state came from Jefferson county (the Pine Bluff area near Locks and Dams 1 through 5). The next largest proportion of Arkansas recreation sales was in Johnson county, the Lake Dardanelle area, with nearly 19%.

In Table 6, the dollar amounts of sales by season are presented. Sales to recreationists as a percentage of gross sales are also presented for each season. In Table 7, gross and recreational sales occurring in each season are expressed as percentages of their annual totals. For the state aggregates and total study area, gross sales and sales to recreationists were highest in the summer (May 15 - Sept. 15).

TABLE 5: GROSS SALES AND SALES TO RECREATIONISTS IN 1978, McCLELLAN-KERR WATERWAY RECREATION BUSINESSES

County	Sample Data		Estimated Totals		
	Gross Sales	Sales to Recreationists	Gross Sales	Sales to Recreationists	Percent of Gross to Recreation
OKLAHOMA					
Osage	$ 100,000	$ 25,148	$ 250,000	$ 62,869	25.1
Nowata	175,000	108,750	1,662,500	1,033,125	62.1
Rogers	1,209,625	445,081	5,721,526	2,105,233	36.8
Tulsa	370,000	265,000	925,000	662,500	71.6
Pawnee	1,718,825	706,785	3,575,156	1,470,113	41.1
Creek	1,701,375	986,125	3,913,162	2,268,088	58.0
Wagoner	525,000	96,844	1,748,250	322,490	18.4
Muskogee	1,000,750	163,598	2,802,100	458,073	16.3
McIntosh	3,894,075	1,702,979	10,397,180	4,546,953	43.7
Pittsburg	1,749,125	1,246,012	5,019,989	3,576,056	71.2
Haskell	845,000	326,312	2,061,800	796,202	38.6
Sequoyah	1,226,875	361,962	4,146,838	1,223,433	29.5
LeFlore	653,125	298,909	783,750	358,690	45.8
State Total[a]	$16,126,275	$ 7,456,630	$43,964,751	$19,606,950	44.6
ARKANSAS					
Crawford	387,500	89,825	775,000	179,650	23.2
Sebastian	150,125	20,878	600,500	83,510	13.9
Franklin	587,500	140,000	2,790,625	665,000	23.8
Johnson	550,000	222,312	3,575,000	1,445,031	40.4
Logan	650,000	140,425	2,437,500	526,594	21.6
Pope	1,371,500	396,032	2,441,270	704,938	28.9
Yell	712,500	193,075	2,850,000	772,300	27.1
Conway	450,000	98,938	450,000	98,938	22.0
Faulkner	237,500	48,625	475,000	97,250	20.5
Jefferson	1,283,750	789,910	4,364,750	2,685,694	61.5
Desha	225,000	157,500	675,000	472,500	70.0
State Total	$ 6,605,375	$ 2,297,520	$21,434,645	$ 7,731,405	36.1
TOTAL	$22,731,650	$ 9,754,150	$65,399,396	$27,338,355	41.8

[a]Totals for Oklahoma include $957,500 in gross sales and $723,125 in sales to recreationists made by state-owned businesses at Eufaula Lake.

TABLE 6: SEASONAL DISTRIBUTION OF 1978 GROSS SALES, SALES TO RECREATIONISTS, AND PERCENTAGE OF GROSS SALES TO RECREATIONISTS, McCLELLAN-KERR WATERWAY RECREATION BUSINESSES[a]

County	March 1 - May 14			May 15 - Sept. 15			Sept. 16 - Nov. 30			Dec. 1 - Feb. 28		
	Gross Sales	Rec. Sales	Percent to Rec.	Gross Sales	Rec. Sales	Percent to Rec.	Gross Sales	Rec. Sales	Percent to Rec.	Gross Sales	Rec. Sales	Percent to Rec.
OKLAHOMA												
Osage	$ 19,125	$ 2,925	15.3	$ 38,625	$ 15,772	40.8	$ 19,125	$ 2,925	15.3	$ 23,125	$ 3,525	15.2
Nowata	46,000	29,325	63.8	68,250	47,588	69.7	26,875	11,156	41.5	33,875	20,681	61.0
Rogers	335,575	130,408	38.9	482,225	196,031	40.6	234,625	93,232	39.7	157,200	25,410	16.2
Tulsa	197,900	140,150	70.8	116,400	84,900	72.9	36,400	25,900	71.2	19,300	14,050	72.8
Pawnee	359,350	134,413	37.4	889,150	478,052	53.8	187,825	25,326	13.5	282,500	68,994	24.4
Creek	572,250	380,088	66.4	597,500	377,825	63.2	243,875	100,530	41.2	287,750	122,682	42.6
Wagoner	163,125	34,500	21.2	183,125	46,406	25.3	134,375	14,500	10.8	44,375	1,438	3.2
Muskogee	248,500	4,380	1.8	428,250	114,675	26.8	173,250	39,355	22.7	150,250	5,188	3.4
McIntosh	930,075	333,830	35.8	1,627,825	927,069	57.0	722,550	249,268	34.5	613,625	192,812	31.4
Pittsburg	522,550	406,756	77.8	727,250	580,394	79.8	311,625	187,500	60.2	187,700	71,362	38.0
Haskell	189,000	76,168	40.3	330,450	155,128	46.9	167,850	52,368	31.2	157,700	42,650	27.0
Sequoyah	394,700	119,947	30.4	416,100	138,062	33.2	248,200	56,497	22.8	167,875	47,456	28.3
LeFlore	176,375	114,920	65.2	271,250	100,738	37.1	100,875	37,039	36.7	104,625	46,212	44.2
State Total[b]	$4,362,775	$2,065,498	47.3	$6,672,125	$3,637,209	54.5	$2,797,100	$1,038,184	37.1	$2,294,275	$ 715,741	31.2
ARKANSAS												
Crawford	88,500	22,350	25.2	123,750	37,125	30.0	84,750	18,600	22.0	90,500	11,750	13.0
Sebastian	57,000	8,290	14.5	61,250	8,375	13.7	15,750	2,102	13.4	16,125	2,110	13.1
Franklin	140,375	47,469	33.8	202,375	41,875	20.7	112,875	25,312	22.4	131,875	25,364	19.2
Johnson	106,125	29,194	27.5	232,125	114,431	49.3	126,500	66,581	53.5	87,250	12,106	13.9
Logan	135,750	31,796	23.4	203,000	45,754	22.5	135,375	29,512	21.8	175,875	33,362	19.0
Pope	335,375	104,431	31.1	526,375	156,649	29.8	273,500	71,350	26.1	236,250	63,602	26.9
Yell	189,875	60,506	31.9	213,375	82,875	38.8	154,875	34,694	22.4	154,375	15,000	9.7
Conway	118,375	29,200	24.7	134,875	57,650	42.7	117,625	8,412	7.2	79,125	3,675	4.6
Faulkner	48,125	11,156	23.2	73,125	27,281	37.3	65,625	5,906	9.0	50,625	4,281	8.5
Jefferson	471,250	305,250	64.8	395,000	268,750	68.0	208,625	93,015	44.6	208,875	122,895	58.8
Desha	56,250	39,375	70.0	90,000	63,000	70.0	36,000	25,200	70.0	42,750	29,925	70.0
State Total	$1,747,000	$ 689,017	39.4	$2,255,250	$ 903,765	40.1	$1,329,500	$ 380,684	28.6	$1,223,625	$ 324,050	25.4
TOTAL	$6,109,755	$2,754,515	45.1	$8,927,375	$4,540,974	50.9	$4,126,600	$1,418,868	34.4	$3,567,900	$1,039,792	29.1

[a]Only for businesses surveyed

[b]Totals for Oklahoma include the following sales made by state-owned businesses at Eufaula Lake: March 1 - May 14, $208,250 in gross sales and $157,688 in rec. sales; May 15 - Sept. 15, $495,225 in gross sales and $374,569 in rec. sales; Sept. 16 - Nov. 30, $189,650 in gross sales and $142,588 in rec. sales; Dec. 1 - Feb. 28, $64,375 in gross sales and $48,281 in rec. sales.

TABLE 7: PERCENTAGES OF 1978 ANNUAL GROSS SALES AND ANNUAL SALES TO RECREATIONISTS OCCURRING IN EACH SEASON, McCLELLAN-KERR WATERWAY RECREATION BUSINESSES[a]

County	March 1 - May 14		May 15 - Sept. 15		Sept. 16 - Nov. 30		Dec. 1 - Feb. 28	
	Gross Sales	Rec. Sales	Gross Sales	Rec. Sales	Gross Sales	Rec. Sales	Gross Sales	Rec. Sales
OKLAHOMA								
Osage	19.1	11.6	38.6	62.7	19.1	11.6	23.1	14.0
Nowata	26.3	27.0	39.0	43.8	15.4	10.3	19.4	19.0
Rogers	27.7	29.3	39.9	44.0	19.4	21.0	13.0	5.7
Tulsa	53.5	52.9	31.5	32.0	9.8	9.8	5.2	5.3
Pawnee	20.9	19.0	51.7	67.6	10.9	3.6	16.4	9.8
Creek	33.6	38.5	35.1	38.3	14.3	10.2	16.9	13.0
Wagoner	31.1	35.6	34.9	47.9	25.6	15.0	8.4	1.5
Muskogee	24.8	2.7	42.8	70.1	17.3	24.1	15.0	3.2
McIntosh	23.9	19.6	41.8	54.4	18.6	14.6	15.8	11.3
Pittsburg	29.9	32.6	41.6	46.6	17.8	15.0	10.7	5.7
Haskell	22.4	23.3	39.1	47.5	19.9	16.0	18.7	13.1
Sequoyah	32.2	33.1	33.9	38.1	20.2	15.6	13.7	13.1
LeFlore	27.0	38.4	41.5	33.7	15.4	12.4	16.0	15.5
State Total[b]	27.0	27.7	41.4	48.8	17.3	13.9	14.2	9.6
ARKANSAS								
Crawford	22.8	24.9	31.9	41.3	21.9	20.7	23.4	13.1
Sebastian	38.0	39.7	40.8	40.1	10.5	10.1	10.7	10.1
Franklin	23.9	33.9	34.4	29.9	19.2	18.1	22.4	18.1
Johnson	19.3	13.1	42.2	51.5	22.6	30.0	15.9	5.4
Logan	20.9	22.6	31.2	32.6	20.8	21.0	27.1	23.8
Pope	24.4	26.4	38.4	39.6	19.9	18.0	17.2	16.1
Yell	26.6	31.3	30.0	42.9	21.7	18.0	21.7	7.8
Conway	26.3	29.5	30.0	58.3	26.1	8.5	17.6	3.7
Faulkner	20.3	22.9	30.8	56.1	27.6	12.2	21.3	8.8
Jefferson	36.7	38.6	30.8	34.0	16.2	11.8	16.3	15.6
Desha	25.0	25.0	40.0	40.0	16.0	16.0	19.0	19.0
State Total	26.4	30.0	34.1	39.3	20.1	16.6	19.3	14.1
TOTAL	26.9	28.2	39.3	46.6	18.2	14.6	15.7	10.7

[a]Only for businesses surveyed

[b]Totals for Oklahoma include sales made by state owned businesses at Eufaula Lake. State Total rows show percentages of total state gross and rec. sales occuring in each season.

In spring (March 1 - May 14), sales were at their next highest levels, followed by fall sales (Sept. 16 - Nov. 30). Winter sales (Dec. 1 - Feb. 28) were the lowest levels. The percentages of gross sales to recreationists (Table 6) also followed this trend. The degree of dependence the businesses have on local residents as non-recreational customers is illustrated by comparing sales to recreationists with gross sales.

Trends in Business Sales Volume

In survey question 5.04, interviewees were asked to select one of five categories which best represented the trend of their sales volume, on an annual basis, since they had started their businesses. Results are presented for the states and total study area in Table 8.

TABLE 8: TRENDS OF SALES VOLUME ON AN ANNUAL BASIS FOR McCLELLAN-KERR WATERWAY RECREATION BUSINESSES

(Percentage of Businesses Interviewed)

Region	Growing Rapidly (over 10%)	Growing Slowly (0-9%)	Steady	Declining Slowly (2-5%)	Declining Rapidly (5% or more)
Oklahoma Counties	38	34	23	3	2
Arkansas Counties	24	30	40	3	3
Total Study Area	35	33	27	3	2

No specific trends in degree of growth could be detected by county or by waterway region. Results indicate that the recreation businesses are growing, not declining. Several of those who selected the "steady" category said they were "growing steadily". However, few people would like to admit they own a business that is declining. For this reason,

results of the survey question may be biased towards the more positive responses.

Any comments made by interviewees during this part of the survey were also recorded. These comments, listed below, provide somewhat more information concerning sales volume trends. Recall that during the summer of 1979, when interviews were taken, there was a great deal of publicity and concern over fuel shortages.

Comments Received from Oklahoma Businesses;

Sales volume has grown steadily
Sales volume has grown rapidly up until this last year
Sales volume has declined in the last two months
Steady growth in sales volume
Interviewee would like to get rid of the gasoline portion of his business
Sales volume has declined this year for the first time
Sales volume fluctuates considerably each year
Up to May 31st, sales were tripled over last year; since then, no boats have been sold
Up until three years ago, sales volume grew steadily, then it began to decline slowly
Sales volume is declining rapidly because of fuel situation
Sales volume has gone down drastically in the last six months
Sales volume has a lot to do with how good the manager is
Sales volume fell off this summer because of gas situation
Business is not making more money
Sales volume declined some this year
Sales volume has grown moderately
Business isn't as good as last year
Sales volume is unpredictable
Since prices have increased it's hard to tell if increases are due to change in sales or change in prices
Sales volume fluctuates 25% one way or another at various times

Comments Received from Arkansas Businesses:

This is the worst year; sales volume has grown until now
Sales volume was growing slowly until gas crunch hit
Sales volume has grown steadily
This year has been more difficult
Steady growth in sales volume
Sales volume has grown steadily
Sales volume has declined slowly over the last two years
Sales volume is growing steadily
There was growth until January, there has been a decline since
Sales volume grew steadily until August, then it declined

Boat sales have really dropped because of bank interest rates on loans; owner can't get loans to make improvements in facilities because of state usury laws

Employment and Payrolls

Employment and payroll data were obtained from responses to questions 2.01 - 2.04 and 3.03 - 3.04 in the survey. One full-time job was defined as 2,000 hours of work per year. Full-time job equivalents of part-time employees were determined using this definition. It was assumed that employees resided in the same county in which they were employed.

Annual full-time and part-time employment and payroll data are presented in Table 9. The waterway businesses created an estimated 1,333 full-time job equivalents in the study area; 80% of these jobs were in Oklahoma. The annual payroll for these jobs was estimated at over $9.5 million. Again, 80% of this money was paid out to Oklahoma employees.

In Oklahoma, the Lake Eufaula area (Pittsburg and McIntosh counties) had the greatest employment impact, responsible for about 60% of the state's jobs and payrolls. In Arkansas, the Lake Dardanelle counties (Johnson, Logan, Pope, and Yell) were responsible for roughly half of the state's employment and payrolls. Pope county had about half the jobs and payrolls in the Lake Dardanelle area. This county contributed 27% of the jobs and 23% of the payroll to the Arkansas totals.

The seasonal distribution of employment in the recreation businesses is shown in Table 10. In the context of this table, a full-time job was the equivalent of 40 hours of work per week during a season. For example, an employee who worked 40 hours per week from May 15 to September 15 (only) was counted as a full-time employee for

TABLE 9: ANNUAL EMPLOYMENT AND PAYROLLS IN 1978, McCLELLAN-KERR WATERWAY RECREATION BUSINESSES

County	Interview Data				Estimated Totals	
	Full-Time Employees	Part-Time Employees	Full-Time Job Equivalents	Annual Payroll	Full-Time Job Equivalents	Annual Payroll
OKLAHOMA						
Osage	0	1	0.7	$ 1,750	1.8	$ 4,375
Nowata	9	0	9.0	76,200	85.5	723,900
Rogers	17	15	21.5	136,934	101.6	647,698
Tulsa	7	2	8.2	55,380	20.5	138,450
Pawnee	20	15	26.0	182,730	54.0	380,182
Creek	24	10	27.4	242,280	62.9	557,244
Wagoner	1	4	3.0	13,400	10.0	44,622
Muskogee	8	4	9.2	95,124	25.8	266,347
McIntosh	138	53	159.2	1,055,059	425.2	2,817,008
Pittsburg	69	26	78.6	588,820	225.6	1,689,913
Haskell	4	7	6.9	33,920	16.7	82,765
Sequoyah	9	6	10.4	89,911	35.2	303,899
LeFlore	0	1	0.2	1,440	0.3	1,728
State Total	306	144	360.3	$2,572,998	1,065.1	$7,658,131
ARKANSAS						
Crawford	2	3	2.5	14,572	5.0	29,144
Sebastian	4	1	4.5	26,900	18.0	107,600
Franklin	5	3	7.2	42,050	34.4	199,738
Johnson	2	0	2.0	11,000	13.0	71,500
Logan	6	3	7.2	18,640	27.2	144,900
Pope	32	25	40.6	251,540	72.2	447,741
Yell	5	4	7.7	68,500	30.7	274,000
Conway	5	0	5.0	60,000	5.0	60,000
Faulkner	4	4	5.7	50,660	11.3	101,320
Jefferson	9	7	11.5	113,620	39.1	386,308
Desha	3	2	4.0	39,000	12.0	117,000
State Total	77	52	97.9	$ 716,482	267.9	$1,939,251
TOTAL	383	196	458.2	$3,289,480	1,333.0	$9,597,382

TABLE 10: SEASONAL DISTRIBUTION OF FULL-TIME AND PART-TIME EMPLOYMENT, 1978, McCLELLAN-KERR WATERWAY RECREATION BUSINESSES[a]

County	March 1 - May 14		May 15 - Sept. 15		Sept. 16 - Nov. 30		Dec. 1 - Feb. 29	
	Full Time	Part Time	Full Time	Part Time	Full Time	Part Time	Full Time	Part Time
OKLAHOMA								
Osage	0	1	0	1	0	1	0	1
Nowata	9	0	9	0	9	0	9	0
Rogers	17	8	17	15	17	8	17	8
Tulsa	7	2	7	2	7	2	7	2
Pawnee	21	11	24	11	21	6	20	6
Creek	24	3	31	3	24	1	24	3
Wagoner	1	4	1	4	1	4	1	4
Muskogee	8	1	11	1	8	1	8	1
McIntosh	167	19	167	24	138	17	133	16
Pittsburg	88	3	92	3	70	1	69	0
Haskell	4	6	5	6	4	6	4	2
Sequoyah	9	3	10	5	9	2	9	2
LeFlore	0	0	0	1	0	0	0	0
State Total	355	61	374	76	308	49	301	45
ARKANSAS								
Crawford	2	1	2	3	2	1	2	1
Sebastian	4	1	4	1	4	1	4	1
Franklin	5	3	5	3	5	3	5	3
Johnson	2	0	2	0	2	0	2	0
Logan	6	2	7	2	6	2	6	2
Pope	32	21	34	23	32	21	32	21
Yell	5	4	5	4	5	4	5	4
Conway	5	0	5	0	5	0	5	0
Faulkner	4	2	4	4	4	2	4	2
Jefferson	9	3	14	2	9	3	9	3
Desha	3	2	3	2	3	2	3	2
State Total	77	39	85	44	77	39	77	39
TOTAL	432	100	459	120	385	88	378	84

[a]Number of employees, only for businesses surveyed

that time period in Table 10; the employee would be considered part-time in Table 9.

The information in Table 10 is based on interview responses only; no projections were made based on total recreation business population. In general, when employment changed with season, the number of employees (full-time, part-time, or both) was highest during the summer (May 15 - Sept. 15). The next highest period of employment was spring (March 1 - May 14), followed by fall (Sept. 16 - Nov. 30), then winter (Dec. 1 - Feb. 28) as the season of lowest employment. Thus, employment followed the same seasonal trends as sales, but the differences in seasonal values were not as great.

Proprietors' Income

Proprietors' (owners') income and employment (1977) were obtained for each of the waterway counties from Bureau of Economic Analysis data (5). This information was used to calculate 1977 income per proprietor in each of the counties. Proprietors' income for 1978 was calculated using the average percent increase in this income for each state from 1977 to 1978 (6). The number of proprietors of each business was obtained during the interview.

The number of proprietors and proprietors' income for the recreation businesses in each county are presented in Table 11. Data obtained from interviews and estimates based on the total number of businesses in each county are shown. An estimated total of 587 proprietors of recreation businesses received a total proprietors' income of $5.8 million in 1978. Sixty-six percent of this income was received by Oklahoma proprietors, while Arkansas proprietors received 34%, or almost $2 million. McIntosh county, Oklahoma, had the greatest number of proprietors and the largest

TABLE 11: PROPRIETORS AND PROPRIETORS' INCOME IN 1978, McCLELLAN-KERR WATERWAY RECREATION BUSINESSES

County	Sample Data		Estimated Totals	
	No. of Proprietors	Proprietors' Income	No. of Proprietors	Proprietors' Income
OKLAHOMA				
Osage	3	$ 70,128	8	$ 175,320
Nowata	2	27,812	19	264,214
Rogers	11	122,496	52	579,406
Tulsa	3	44,166	8	110,415
Pawnee	14	151,690	29	315,515
Creek	10	154,050	23	354,315
Wagoner	4	28,000	13	93,240
Muskogee	7	79,373	20	222,244
McIntosh	35	251,580	93	671,719
Pittsburg	17	146,761	49	421,204
Haskell	16	147,552	39	360,027
Sequoyah	10	72,830	34	246,165
LeFlore	6	42,252	7	50,702
State Total	138	$1,338,690	394	$3,864,486
ARKANSAS				
Crawford	2	17,826	4	35,652
Sebastian	2	27,714	8	110,856
Franklin	9	81,891	43	388,982
Johnson	5	41,620	32	270,530
Logan	6	50,940	22	191,025
Pope	13	154,076	23	274,255
Yell	4	28,120	16	112,480
Conway	4	37,624	4	37,624
Faulkner	2	19,570	4	39,140
Jefferson	9	124,803	31	424,330
Desha	2	28,260	6	84,780
State Total	58	$ 612,444	193	$1,969,654
TOTAL	196	$1,951,134	587	$5,834,140

income of the waterway counties. Jefferson county, Arkansas, had the largest estimated proprietors' income in that state.

Economic Impact of Waterway Recreation Businesses

The economic impact of the recreation businesses was measured in terms of employment and income, using export base multipliers. These multipliers (Appendix H) were developed by the Department of the Army's Construction Engineering Research Laboratory (Champaign, Illinois). The location quotient technique, using 1972 data, was used to calculate the income and employment multipliers for each county. It was assumed that the multipliers, i.e., the county : nation income and employment relationships, have not changed significantly since 1972.

Employment

To determine employment impacts, the employment multiplier was applied to estimated total recreation business employment in each county. Proprietor employment was included in total employment, since these people were usually owner-operators, self-employed by their own businesses rather than financial owners only. Each proprietorship was assumed to represent one full-time job equivalent. Employee job equivalents and proprietor job equivalents were added to determine total recreation business employment in each county. This value multiplied by the county's employment multiplier determined total employment impact of the waterway recreation businesses in each county.

Employment impact of the waterway recreation businesses, in terms of the total number of full-time job equivalents created, is shown

in Table 12. For the entire study area, the recreation businesses employed the equivalent of 1,920 full-time personnel, as employees or proprietors. After multiplier effects, a total of 4,023 full-time job equivalents were created. These jobs include those of the recreation businesses plus those created in all other business sectors as a result of recreation employment. Over three-fourths, 76%, of total recreation employment and total employment impact occurred in Oklahoma waterway counties. McIntosh county was responsible for 36% of Oklahoma's employment and employment impact; that county contributed 27% of the total study area employment and 28% of the employment impact of all the waterway recreation businesses.

In Arkansas, Pope county businesses made the greatest contribution to the state's employment. Businesses in that county had 21% of state waterway recreation business employment and 20% of the state's total employment impact.

Income

Impact of the recreation businesses on waterway county personal income was determined by applying the income multipliers to payroll and proprietors' income from the businesses. The sum of county payroll and proprietors' income, as estimated from the total number of recreation businesses in each county, was calculated. This value multiplied by the income multiplier for each county determined the impact of the recreation businesses on personal income in the waterway counties.

Waterway recreation businesses paid out an estimated $15.4 million in payrolls and proprietors' incomes in 1978 (Table 13). Including the multiplier effects, over $33.2 million of personal income were generated from these businesses. Oklahoma businesses were responsible for

TABLE 12: EMPLOYMENT IMPACT IN 1978, McCLELLAN-KERR WATERWAY RECREATION BUSINESSES

County	Total Recreation Business Employment[a]	Employment Impact[b]
OKLAHOMA		
Osage	9.8	16.2
Nowata	104.5	238.9
Rogers	153.6	333.5
Tulsa	28.5	81.1
Pawnee	83.0	174.0
Creek	85.9	171.5
Wagoner	23.0	50.4
Muskogee	45.8	100.0
McIntosh	518.2	1,107.4
Pittsburg	274.6	531.1
Haskell	55.7	116.9
Sequoyah	69.2	140.8
LeFlore	7.3	14.5
State Total	1,459.1	3,076.3
ARKANSAS		
Crawford	9.0	19.3
Sebastian	26.0	54.8
Franklin	77.4	179.3
Johnson	45.0	87.3
Logan	49.2	94.1
Pope	95.2	189.2
Yell	46.7	86.2
Conway	9.0	18.7
Faulkner	15.3	33.7
Jefferson	70.1	152.7
Desha	18.0	31.7
State Total	460.9	947.0
TOTAL	1,920.0	4,023.3

[a] Estimated total number of full-time job equivalents (from Table 9) plus estimated total number of proprietors (from Table 11) employed by the recreation businesses

[b] Total number of full-time job equivalents created by the recreation businesses (this includes the jobs in the recreation businesses)

TABLE 13: INCOME IMPACT IN 1978, McCLELLAN-KERR WATERWAY RECREATION BUSINESSES

County	Total Recreation Business Income[a]	Income Impact[b]
OKLAHOMA		
Osage	$ 179,695	$ 288,410
Nowata	988,114	2,636,288
Rogers	1,227,104	2,942,595
Tulsa	248,865	618,678
Pawnee	695,697	1,664,107
Creek	911,559	1,865,961
Wagoner	137,862	322,597
Muskogee	488,591	970,342
McIntosh	3,488,727	8,341,546
Pittsburg	2,111,117	3,838,011
Haskell	442,792	963,515
Sequoyah	550,064	1,107,279
LeFlore	52,430	109,526
State Total	$11,522,617	$25,668,855
ARKANSAS		
Crawford	64,796	135,812
Sebastian	218,456	465,093
Franklin	588,720	1,142,706
Johnson	342,030	619,758
Logan	335,925	646,992
Pope	721,996	1,314,755
Yell	386,480	849,097
Conway	97,624	178,652
Faulkner	140,460	306,484
Jefferson	810,638	1,608,306
Desha	201,780	320,427
State Total	$ 3,908,905	$ 7,588,082
TOTAL	$15,431,522	$33,256,937

[a] Estimated total payrolls (Table 9) plus estimated total proprietors' income (Table 11) earned from the recreation businesses

[b] Total personal income created by the recreation businesses (this includes the income earned from the recreation businesses)

about three-fourths of the income directly received ($8.6 million) and the total personal income generated ($25.7 million) from all the waterway recreation businesses. Again, McIntosh county businesses had the greatest totals. Businesses in McIntosh county paid nearly $3.5 million in payroll and proprietors' incomes or 30% of the 1978 state total; the county's businesses contributed $8.3 million or 32% of the total income generated by the businesses in the state. McIntosh county businesses were responsible for about one-fourth of the income totals of all the waterway recreation businesses. Jefferson county, Arkansas, had the largest recreation business income of the state, with 21% of each of the Arkansas income totals.

Interpretation of Results and Conclusions

In the earlier IWR study, estimated aggregate expenditures by recreationists on the Navigation System were $224.3 million in 1975 (1, p. 72). This total included trip expenditures such as lodging, food and beverages, transportation, and any fees for recreation activities. It also included annual expenditures for boating, fishing, skiing, and camping, such as insurance, licenses, bait, and tackle. Annual expenditures did not include depreciation on capital investments in equipment.

In the 1974-75 study, the Navigation System was defined to include Tenkiller Lake and Fort Gibson Lake. In the current study these two lakes are not included in the Navigation System impact area. Subtracting the $83.2 million of expenditures by recreationists at those two lakes in 1975, the aggregate expenditures by recreationists in 1975 were $141.1 million.

Other studies have indicated that about one-fourth to one-third of the trip and annual expenditures are made in the immediate or local area of the recreation facilities (3,4). In that case, $35.3 million to $46.6 million were spent by recreationists in 1975.

According to the results of this study, sales to recreationists by the waterway business totaled $27.3 million in 1978. This estimate is less than the $35.3 million minimum estimate based on 1975 results (1). The total of $27.3 million in recreationists' expenditures in the local areas around the lakes, based on the interview results of this study, is probably an underestimate. The question "what was your gross sales volume last year?" could have sensitive connotations to some interviewees who were insecure about the confidentiality of their

responses. Specifically, some respondents suspected a connection between this study and the Internal Revenue Service. As a result, some business operators probably gave lower-valued responses to the questions concerning sales volume.

There are several ways to measure the economic impact of water- and related land-based recreation activities on the Arkansas River Navigation System. Impacts can be analyzed locally, such as in this study, on a larger regional basis, such as three BEA areas analyzed by recreationists' expenditures in the 1975 IWR study (1), or on a national basis, where impacts of manufacturers of campers, boats, and other recreation equipment are included. The perspective of the policy planner and the decisions to be made are major determinants in selecting the level of analysis.

This study provides useful results for local governments, state governments, and for Corps of Engineers' personnel. The county income and employment impacts of recreation businesses provide an indication of the importance of this sector to the economy of the Arkansas River region. For McIntosh, Rogers, and Pittsburg counties in Oklahoma and for Jefferson and Franklin counties in Arkansas, the size of proprietors' income from the recreation businesses certainly has a significant impact on the local economy (Table 11).

Similarly, the employment impact of recreation businesses is important to these local economies. The 519 primary jobs and the total employment impact of 1,108 jobs in McIntosh county indicate that these businesses are a major employer in that county. Overall, more than 4,000 jobs are provided by recreation businesses along the Navigation System (Table 12).

Finally, the income impact from recreation businesses also is significant to the waterway counties. For McIntosh county, Oklahoma, the income impact of $8.3 million is vital to the economic viability of the local economy (Table 13). The aggregate annual income impact of $33.3 million due to recreation businesses exemplifies the importance to local economies of recreation as one of the multiple purposes of water resource development projects.

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APPENDIXES

BUSINESS QUESTIONNAIRE

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APPENDIX A

McCLELLAN-KERR WATERWAY RECREATION BUSINESS SURVEY

Department of Agricultural Economics
Oklahoma State University
Stillwater, Oklahoma 74074

Summer 1979

Date: _____ Time: _____ Interviewer: _____

Name of Business: _____

Address: _____

SECTION I. General Information

1.01 Location of Business

1. On U.S. Highway _____
2. On State Highway _____
3. On Access Road _____
4. On Lake or Shore _____

1.02 Miles from Lake

1. Immediate Area
2. Less than 1 Mile
3. 1-2 Miles
4. 2-3 Miles
5. 3-5 Miles
6. 5-10 Miles
7. 10-15 Miles
8. Over 15 Miles

1.03 Type of Business (Rank top three in order of significance)

___1. Lodging
___2. Restaurant-Convenience
___3. Restaurant-Sit down
___4. Tavern
___5. Service Station
___6. Food Store
___7. Marina (full-service)
___8. Boat Rental
___9. Boat Storage
___10. Boat Sales
___11. Boat Repair
___12. Retail Water Sports Equipment
___13. Retail Fishing Equipment
___14. Fishing Bait - Tackle
___15. Package Liquor
___16. Package 3.2 Beer
___17. Open Fishing Dock
___18. Closed Fishing Dock
___19. Boat Docks
___20. Snacks, Ice, Tobacco, etc.
___21. Gasoline Sales Only (no service)
___22. R.V. Storage
___23. Camping Equipment
___24. Miscellaneous
___25. Sporting Goods
___26. R.V. Sales
___27. R.V. Repairs

1.04 Person Interviewed

1. Owner-Operator
2. Manager
3. Lessee
4. Other_____

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1.05 Is the business operated under a concession contract with the Corps of Engineers?

Yes _____ N _____

1.06 Is this business operated under a concession contract with the State Department of Tourism and Recreation?

Yes _____ N _____

1.07 How long has operator owned or operated business? _____ (yr.)

1.08 Did present owner start this business originally?

Yes _____ N _____

1.09 Age of business _____

1.10 Occupation before operating this business _____

1.11 Reason for discontinuing this business _____

SECTION II. Employees' Data

2.01 Full time _____ employees 2.03 Payroll/yr _____ (full time)

2.02 Part time _____ employees 2.04 Payroll/yr _____ (part time)

_____ (no.) _____ hrs. wk

_____ (no.) _____ months/yr

SECTION III. Seasonal Nature of Business

		1 Mar 1-May 14	2 May 15-Sep 15	3 Sep 16-Nov.	4 Dec.-Feb.
3.01	% of Annual Sales				
3.02	% of Sales Made to Persons Using Lake				
3.03	No. of Employees	Full Time				
3.04		Part Time				

3.05 Indicate Months Open

1. Jan. 2. Feb. 3. Mar. 4. Apr. 5. May 6. June

7. July 8. Aug. 9. Sept. 10. Oct. 11. Nov. 12. Dec. 13. Year Around

3.06 Comments: _____

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SECTION IV. Owner's Investment Data

4.01 Value of land at start of business $ _____

4.02 Original investment in buildings and improvements $ _____

4.03 Subsequent investment in improvements $ _____

4.04 Current investment in inventory $ _____

4.05 **Estimated market value of land and improvements** (Exclude inventory) $ _____

SECTION V. Business Sales and Operational Data

5.01 Major Management Problems

_____ 1. Inability to get and retain good help

_____ 2. Vandalism

_____ 3. Seasonality

_____ 4. Uncertainty of weather

_____ 5. Fluctuating water level in lake

_____ 6. Gas shortage and/or higher gas prices

_____ 7. Inflation (i.e., higher cost of living)

_____ 8. Other _____
(Rank in order of significance if more than one)

5.02 Means of Advertisement

1. None
2. Newspaper
3. Radio
4. TV
5. Outdoor Signs
6. Direct Mail
7. Word of Mouth
8. Telephone Book (Yellow Pages)
9. Other _____
10. Other _____

5.03 Is gasoline sold by this business?

Yes _____ No _____

If yes, what is the annual sales volume of: leaded gas _____ gal.

unleaded gas _____ gal.

Has the gas shortage and/or higher gas prices adversely affected the volume of gasoline sales?

Yes _____ No _____

Comments: _____

_____

_____

_____

_____

5.04 Trend of Sales Volume on Annual Basis Since Present Owner Began Business

1. Growing Rapidly (over 10%)
2. Growing Slowly (0-9%)
3. Steady
4. Declining Slowly (0-5%)
5. Declining Rapidly (5% or more)

Comments: _____

_____

_____

5.05 Percent of Total Gross Sales Resulting from Services _____ %.

5.06 Percent of Total Gross Sales Resulting from Sales of Goods _____ %.

5.07 Gross Sales Volume Last Year (calendar year)

1. Under $5,000
2. 5,000 - 9,999
3. 10,000 - 14,999
4. 15,000 - 24,999
5. 25,000 - 49,999
6. 50,000 - 74,999
7. 75,000 - 99,999
8. 100,000 - 124,999
9. 125,000 - 149,999
10. 150,000 - 199,999
11. 200,000 - 249,999
12. 250,000 - 350,000
13. Over $350,000

SECTION VI. General Comments

6.01 How much effect has the lake/lock & dam/river had on your business?

1. none
2. slight
3. 50/50
4. business is mostly due to lake
5. business is entirely due to lake
6. Other _____

6.02 General Comments: _____

_____

_____

_____

_____

_____

_____

6.03 County _____ Code No. _____

Survey form approved by:
Oklahoma Agricultural Experiment Station
for official use in conjunction with state station project 1672

DDB/SGTC/kmw
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6/4/79

APPENDIX B

SPECIAL COMMENTS ON DATA COLLECTION BY PERSONAL INTERVIEW

Developing the Inventory of Businesses

The inventory of businesses used to select the sample for this study was obtained by windshield survey. The least amount of time spent inventorying an area was one day, while some of the larger areas required up to four days. Maps from the Corps of Engineers along with AID Sportsman's maps purchased at local stores helped us locate some of the businesses. These maps were also helpful in guiding us through areas off the main road. Occasionally, the maps were incorrect and lead us a little farther and wider than we first intended, but without them our task could have been much more difficult.

The kinds of businesses inventoried and interviewed are discussed in the results section of this report. Businesses which were obviously present to serve local community residents, such as supermarkets, department stores, and variety stores were not included in the inventory.

Conducting the Personal Interviews

Before we began interviewing in earnest, we contacted local County Extension representatives (Oklahoma only) and area Corps of Engineer Project Offices. Besides making the local office aware of our project, this was important for establishing credibility to the public. If some irate or suspicious interviewee wondered about our

authenticity, he or she could simply call the local Corps office or County Extension Agent for reassurance.

The average interview lasted approximately fifteen minutes. Time required varied according to the number of interruptions occurring during the interview and the chattiness of the owner-operator. Asking how long the business has been in operation at the start of the interview can save time. Businesses that had been open less than a year were unable to answer most interview questions.

Another problem we tried to avoid was approaching the businesses when they were busy serving customers. We were careful not to pester owner-operators, but we did try to contact a business at least two different times before we gave up trying to get an interview.

Most Oklahoma owner-operators we contacted were receptive to the interview. Some were skeptical at first and some refused to be questioned. In Oklahoma, people around Eufaula Lake seemed the most friendly and willing to cooperate, while people near Lake Oologah seemed least receptive. More skepticism was apparent in Arkansas. Many expressed distrust in "outsiders asking personal questions."

An unfortunate circumstance made interviewing more difficult in the Lake Dardanelle area. Just a day before we began interviewing there, some state census employees had passed through with their own questionnaires. Thus, people in this area felt they had already had enough interviewing, and many did not wish to answer another set of questions. However, others in Arkansas were friendly and answered our questions willingly.

The most productive time of the day to interview was in the morning. We don't know why this was true, but repeatedly, interviewees responded much more willingly before noon than after noon. We thus recommend, with no other reason but experience, that the time of day be considered in future studies of this nature.

Because of the remoteness of many of the businesses, we traveled two per car. It was convenient to have one person record the inventory data while the other drove. Also, one person could organize data between interviews while the other drove.

If two businesses to be sampled were within walking distance, we would interview independently. Otherwise, we conducted the survey together. Because it was summertime, it was usually too hot for one to remain in the car while the other interviewed. Thus, we both entered the establishment and introduced ourselves. Generally, just one person asked the questions while the other stood close by. It was important that the second interviewer stay nearby during the interview. A person wandering around a store while the operator is being "distracted" with a questionnaire could easily cause the operator to become suspicious.

The best way to get data from these kinds of businesses is to enter the business without prior notification and begin the interview, with introduction, of course. If the owner-operator had suspected he or she was going to be approached for an interview, that individual might not have been there when we arrived.

Probably considerable underestimating took place, particularly on sales and income questions. Some people would obviously guess at which answer to choose; others had no idea. Any judgment attempted would be completely subjective. There is no way to accurately measure or estimate how much guessing, underestimating, or overestimating occurred. This is one of the largest problems with this type of data collection.

Economizing on Travel Time and Interviewing Costs

Using the random sample technique caused more traveling expenses. Instead of interviewing the businesses as we came to them, we were required to interview only the preselected businesses. If we were not able to get interviews from all the businesses that were in the sample, we would go to the alternates. To keep the sample random, we had to start at the top of the alternate list of businesses selected and drive to each different location until we had out quota for that area. Some of the businesses might be on one end of the lake, while others were at the opposite end. This driving used considerably more time and gasoline. One way we minimized the driving was to go ahead and interview all the alternates in one area that were near the top of the list. We were able to judge how many we might need to interview by our previous response rate in the area.

While interviewing near Eufaula Lake, we found Fountainhead and Arrowhead lodges comfortable, as well as economical places to stay. We stayed in Bartlesville while interviewing around Oologah Lake. The only other available motels would have been in Tulsa. While interviewing the Keystone Lake area, we were able to return to Stillwater daily after completing our interviews.

In Arkansas we stayed in Russellville while interviewing the Ozark Lock and Dam and Dardanelle Lake areas. While interviewing around the Pine Bluff area and south of Pine Bluff we stayed in a Pine Bluff motel. The recreation areas in Oklahoma and Arkansas are highly recommended for future interviewers who enjoy camping.

APPENDIX C

MAJOR MANAGEMENT PROBLEMS OF BUSINESSES SURVEYED

Interviewees were asked to state their major management problems, and to rank them in order of significance if they had more than one problem. The question was presented as follows:

5.01 Major Management Problems

_____ 1. Inability to get and retain good help

_____ 2. Vandalism

_____ 3. Seasonality

_____ 4. Uncertainty of weather

_____ 5. Fluctuating water level in lake

_____ 6. Gas shortage and/or higher gas prices

_____ 7. Inflation (i.e., higher cost of living)

_____ 8. Other _____
(Rank in order of significance if more than one)

Interviewees selected as few as one up to as many as eight problems from the above list. Many interviewees stated that they had no management problems.

Results are summarized below for each state and for the total 28-county area. The first row of each table reflects the total number of times each item from the above list was mentioned as a problem. The next three rows reflect the number of times each item was ranked as #1, #2, and #3, respectively.

MAJOR MANAGEMENT PROBLEMS OF OKLAHOMA WATERWAY RECREATION BUSINESSES

Problem No.	1	2	3	4	5	6	7	8
Total no. of times mentioned	21	12	28	31	16	29	29	4
No. of times ranked #1	19	6	15	14	1	8	5	2
No. of times ranked #2	1	2	8	11	5	8	10	1
No. of times ranked #3	0	0	4	4	7	8	6	0

MAJOR MANAGEMENT PROBLEMS OF ARKANSAS WATERWAY RECREATION BUSINESSES

Problem No.	1	2	3	4	5	6	7	8
Total no. of times mentioned	4	1	2	1	0	5	6	2
No. of times ranked #1	4	0	0	0	0	3	2	2
No. of times ranked #2	0	1	0	0	0	1	3	0
No. of times ranked #3	0	0	2	0	0	1	0	0

MAJOR MANAGEMENT PROBLEMS OF THE 28-COUNTY AREA WATERWAY RECREATION BUSINESSES

Problem No.	1	2	3	4	5	6	7	8
Total no. of times mentioned	25	13	30	32	16	34	35	6
No. of times ranked #1	23	6	15	14	1	11	7	4
No. of times ranked #2	1	3	8	11	5	9	13	1
No. of times ranked #3	0	0	6	4	7	9	6	0

APPENDIX D

MEANS OF ADVERTISEMENT FOR BUSINESSES SURVEYED

Interviewees were asked (in survey question 5.02) to select from the following list the means they used to advertise their business. The table below summarizes results for each state and for the total 28-county area. Some operators relied only on word of mouth for their advertising; others used several means of advertisement. Results are presented in terms of the relative level of use of each type of advertisement.

5.02: Means of Advertisement

1. None
2. Newspaper
3. Radio
4. TV
5. Outdoor Signs
6. Direct Mail
7. Word of Mouth
8. Telephone Book (yellow pages)
9. Other _____
10. Other _____

MEANS OF ADVERTISEMENT, McCLELLAN-KERR WATERWAY RECREATION BUSINESSES

Means of Advertisement	1	2	3	4	5	6	7	8	9&10
Oklahoma	5%	19%	6%	2%	15%	3%	18%	19%	13%
Arkansas	8%	20%	21%	8%	5%	4%	6%	18%	10%
Total Area	6%	19%	10%	3%	13%	3%	16%	18%	12%

The most used advertisement method for the Oklahoma businesses was the telephone book and newspaper ads, followed by word of mouth. In Arkansas, the most used means of advertisement was radio ads, followed

by telephone book ads. For the combined area, newspaper ads were the major means of advertisement, followed by telephone book advertisements. The category "other" included novelties such as matchbooks, pencils, T-shirts, and caps, lake association magazines and brochures, maps, pamphlets, and circulars.

APPENDIX E

IMPACTS OF GASOLINE SHORTAGE AND/OR HIGHER GASOLINE PRICES ON McCLELLAN-KERR WATERWAY RECREATION BUSINESSES

Eighty-six of the 156 businesses surveyed included gasoline sales. Operators of these businesses were asked (survey question 5.03) if the gas shortage and/or higher gas prices had adversely affected the volume of gasoline sales they had made in recent months (interviews were conducted during the summer of 1979). Forty-three Oklahoma operators and ten Arkansas operators said yes, gas sales volume had been adversely affected. The remaining 33 respondents (22 in Oklahoma and 11 in Arkansas) said their gas sales volume had not been adversely affected.

After answering the above question, many of the operators made comments. Comments received are listed below by state.

Oklahoma

News media's overplaying of the gas shortage did more harm than anything
Gas sales volume is way under its usual level
People aren't coming to the lake because of the gas shortage
The business doesn't get enough gas to sell
The leaded fuel portion of the business is hurting him
Sales, in terms of dollars, are only 45% of what they were last summer
Fuel situation is easing him slowly out of business
Allocation hurts his business, he could sell as much as he could get
Can't get enough gas to sell
Gas sales have not increased in volume
There is no gas shortage
Out of gas, can't get any, will sell less this year because the business is on allotment
If business could get more gas, it could sell more
Out of gas to sell
Sales volume has decreased about 50%
Business has not felt a "whole lot" of effect
Because of higher gas prices, people can't get to the lake
Fuel situation has had some adverse effect
Fuel situation hurts skiers that come to the lake
No effects have been felt yet

There has been a little bit of effect from the fuel situation
Not as many tourists because of "supposed" gas shortage and higher prices
Business can't get gas, so it can't sell it
Gas sales have increased because this business had the gas
Give us more gas
Fuel situation has had a lot of adverse effect on sales volume, but business is making more money (because of higher fuel prices)
Gas shortage has increased sales, because people stay closer to home
No effects have been felt yet
Gas shortage has affected boat sales
No effects so far

Arkansas

Fuel situation has affected profits (adversely)
Business is selling more gas
Maybe there has been a little, very little (adverse) effect
Business has been out of gas some
Gas sales have increased (4 businesses made this comment)
Can't get gas
People panic when they're told that gas is short
Gas sales have increased
No effects have been felt yet

The last four comments in the Oklahoma list are from the Keystone Lake area, and the last six comments in the Arkansas list are from the Dardanelle Lake area. Both of these lakes are close to relatively large population centers (Tulsa and Russellville), and the comments seem to reflect the impact of people from these cities staying closer to home.

APPENDIX F

GENERAL COMMENTS RECEIVED FROM WATERWAY RECREATION BUSINESS OPERATORS

After the survey information was completed, interviewees were given the opportunity to make any general comments they wished to add (question 6.02). Comments received are listed below by county. Some comments reveal businesses that were established before waterway projects were opened.

I. Oklahoma

1. Osage County

   Corps won't maintain park areas, county doesn't maintain the roads (to the areas)
   Corps won't put up signs advertising the recreation areas

2. Nowata County

   Lake was harmful to his business; he's going to start selling bait to help

3. Rogers County

   The lake and the school were the main reasons they moved here
   The lake is kept up nicely, the Corps are nice people
   Business sells gasoline on consignment
   Interviewee was in this business for the fun and not the profit
   Most people (trading at this business) are going to Grand Lake

4. Pawnee County

   State should take over Cowskin Bay North from Corps of Engineers
   The lake is fantastic
   Recreationists couldn't get into Washington Irving South Beach because sheriff was guarding the gate (beach was too crowded)
   Lake has helped Cleveland; the town has gotten better highways and bridges
   Kaw Dam is hurting Keystone; Kaw was built for recreation, which makes Keystone a power lake
   Cowskin Bay is neglected; it needs more businesses, road repair, and electricity
   Interviewee decided to open his business at this location because of lake, stability, and growth rate
   Seasonality affects business

I. Oklahoma (cont.)

5. Creek County

Park areas need more electric and water hook-ups; lake had little effect on business
Town is growing because of the lake, it helps business (bedroom community for Tulsa)
80% of business is from Tulsa

6. Wagoner County

Need electricity in the parks; parks suffer a lot of vandalism

7. Muskogee County

Put in more locations for recreation

8. McIntosh County

Lake hurts business more than it helps
80% of weekend business is from lakegoers, the percentage is lower during the week
Texanna Road needs to be made into a highway
Need protection from wind with wind breakers or jettys
Good people at the lake
They better not fence the lake unless they want a war
Fix Texanna Road! It would increase business
Wish Corps would stay out of lake management

9. Pittsburg County

This business caters to lake users more than locals, people go to town for groceries because they're cheaper
Need to clear up the lake water, can't fish for bass because it's too muddy. Corps won't do anything with this (southern) part of the lake
Lake has improved his business, but unknown how much. He thought the new highway would hurt business, but the lake has helped business
Corps has helped in maintenance of lake and fish habitat
From what local natives have said, there was better fishing here before the lake was put in

10. Haskell County

Keep the water level in the lake the same
Corps needs to clean up the park
This year has not been much, but in past years, the lake made his business

11. Sequoyah County

Lake has helped business
Need to mow grass and put in electricity at park to help business
Not enough advertising (is done for the lake)

I. Oklahoma (cont.)

People fish on the river, visit Lake Tenkiller, and go back and forth between the two

12. LeFlore County

Need more trees on the beach
Lake is great, but need more organization
Corps should lease a marina halfway between the locks (14 & 15) to increase recreational impact

II. Arkansas

13. Crawford County

There is no electricity in Clear Creek Park
Business has had declined sales this year; electricity is needed in the park

14. Sebastian County

Ft. Chaffee helps business (mostly construction workers)
Opening and closing of gates (in dam) hurts business

15. Franklin County

Need a boat dock in Ozark Lake

16. Johnson County

Dam has helped the fishing

17. Logan County

Need to restock the fish in the lake
Raise the water level or dredge areas for skiing

18. Pope County

Beautiful river, but it needs to be publicized
Last year there was good tourist business, but this year there isn't

19. Conway County

Gates in dam cause a problem
Town might not be here if not for the Navigation System

20. Jefferson County

Water level should be controlled better so it won't mess up the fishing
This business wouldn't be here without the river
Water level is raised and lowered too much; prove that the river is <u>not</u> polluted, as people say it is

APPENDIX G

DISTRIBUTION OF 1978 GROSS SALES AS GOODS AND SERVICES, McCLELLAN-KERR WATERWAY RECREATION BUSINESSES[a]

County	Gross Sales	Percent of Sales as Goods	Percent of Sales as Goods
OKLAHOMA			
Osage	$ 100,000	82	18
Nowata	175,000	90	10
Rogers	1,209,625	100	0
Tulsa	370,000	82	18
Pawnee	1,718,825	87	13
Creek	1,701,375	65	35
Wagoner	525,000	99	1
Muskogee	1,000,750	93	7
McIntosh	3,894,075	90	10
Pittsburg	1,749,125	77	23
Haskell	845,000	80	20
Sequoyah	1,226,875	59	41
LeFlore	653,125	85	15
State Total[b]	$16,126,275	77	23
ARKANSAS			
Crawford	387,500	77	23
Sebastian	150,125	100	0
Franklin	587,500	96	4
Johnson	550,000	87	13
Logan	650,000	100	0
Pope	1,371,500	66	34
Yell	712,500	100	0
Conway	450,000	100	0
Faulkner	237,500	100	0
Jefferson	1,283,750	44	56
Desha	225,000	95	5
State Total	$ 6,605,375	73	27
TOTAL	$22,731,650	76	24

[a]Only for businesses surveyed

[b]Totals for Oklahoma include $957,500 in sales made by state-owned businesses at Eufaula Lake.

APPENDIX H

COUNTY EMPLOYMENT AND INCOME MULTIPLIERS

County	Employment Multiplier	Income Multiplier
OKLAHOMA		
Osage	1.657	1.605
Nowata	2.286	2.668
Rogers	2.171	2.398
Tulsa	2.846	2.468
Pawnee	2.096	2.392
Creek	1.997	2.047
Wagoner	2.191	2.340
Muskogee	2.184	1.986
McIntosh	2.137	2.391
Pittsburg	1.934	1.818
Haskell	2.098	2.176
Sequoyah	2.034	2.013
LeFlore	1.993	2.089
ARKANSAS		
Crawford	2.142	2.096
Sebastian	2.108	2.129
Franklin	2.316	1.941
Johnson	1.941	1.812
Logan	1.912	1.926
Pope	1.987	1.821
Yell	1.845	2.197
Conway	2.083	1.830
Perry	1.439	1.948
Faulkner	2.204	2.182
Pulaski	2.875	2.697
Jefferson	2.178	1.984
Arkansas	1.839	1.568
Lincoln	1.568	1.508
Desha	1.762	1.588

Source: Construction Engineering Research Laboratory, U.S. Army Corps of Engineers, Economic Impact Forecasting System, Champaign, Illinois.

Badger, Daniel D.
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